

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

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OMB No. 0690-0008

1. CONTRACT ID CODE N/A

2. AMENDMENT/MODIFICATION NO.
AMENDMENT 0003

3.EFFECTIVE DATE

4. REQUISITION/PURCHASE REQ. NO.
NRMAE0000000020

5.PROJECT NO. (If applicable)

6. ISSUED BY CODE: OFA611:WLV
U.S. DEPARTMENT OF COMMERCE/NOAA
ACQUISITION MANAGEMENT DIVISION
ADP CONTRACTS BRANCH
1305 EAST WEST HIGHWAY, ROOM 7604
SILVER SPRING, MD 209107. ADMINISTERED BY CODE
(If other than Item 6)8. NAME AND ADDRESS OF CONTRACTOR (No.
Street, County, State and ZIP Code)[X]9A. AMENDMENT OF SOLICITATION NO.
52-DDNR-0-90030
9B. DATED (See Item 11)
MAR 28, 2000

ALL OFFERORS

[]10A. MOD. OF CONTRACT/ORDER NO.

Code:
FACILITY CODE:

10B. DATED (See Item 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [X] is extended, [] is not extended. Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning 1 copy of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

NOT APPLICABLE

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13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) _____
THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.

[] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

[] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [] is not, [] is required to sign this document and return ____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible).

1. This Amendment extends the closing date for receipt of proposals until 3:00 PM Eastern Daylight Savings Time on June 9, 2000.

2. This Amendment also revises the Solicitation as follows:

SECTION C

o Section C.4.2.7, Reliability, Availability, and Support, replace the fourth bullet of this section with the following:

[Continued on Page 3]

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remain unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER
(Type or print)

16A. NAME AND TITLE OF CONTRACTING
OFFICER (Type or print)
WILLIAM L. VOITK
Contracting Officer

15B. CONTRACTOR/OFFEROR

16B. UNITED STATES OF AMERICA

(Signature of person
authorized to sign)

(Signature of Contracting Officer)

15C. DATE SIGNED

16C. DATE SIGNED

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“o Uninterruptable power supplies (UPSs) for all components of the HPCS to provide sufficient power during environmental failure to gracefully shut down all components of the HPCS, effective no later than 60 days after the shutdown of the T932 system.” Page C-17 of the Solicitation should be removed and replaced with the enclosed Page C-17.

o Section C.4.9.2, Availability, replace the first sentence of the last paragraph in the section with the following:

“Uninterruptable power supplies (UPSs) are required for all components of the HPCS, effective no later than 60 days after the shutdown of the SGI/CRAY T932 system.” Page C-32 of the Solicitation should be removed and replaced with the enclosed Page C-32.

o Section C.4.10.2, Available Power, Add the following sentence to the end of the first paragraph:

“Current plans are to upgrade the substation transformer to 2500 kVA during the summer of 2000.” Page C-34 of the Solicitation should be removed and replaced with the enclosed Page C-34.

o Section C.4.10.3, Available Cooling, replace the second paragraph in this section with the following:

“Cooling is delivered to the Computer Room through a six-inch piping system from the mechanical room at a temperature of 45 degrees Fahrenheit, plus or minus 2 degrees. The pipe enters the Computer Room in a trench that is 3-4 feet deep under the raised floor in the center of the Computer Room, as indicated in Figure 2. It is currently connected to five (5) air conditioning (blazer) units located on the raised floor, as well as to the refrigeration units of the existing SGI/Cray systems. Four (4) air conditioning units, each rated at 20 tons, are distributed in the center of the Computer Room, while one 40-ton unit is located near the doorway to the loading dock. The locations of these five units are indicated by blue rectangles in Figure 3, which shows details of the room layout as of the summer of 2000. These existing air conditioning units, with compressors, refrigeration circuits, etc., are estimated to be 21 years old.

The Contractor has the responsibility to develop and implement an air conditioning plan for the Computer Room that provides adequate cooling, humidification and dehumidification to maintain the environment of the room at the operating specifications needed for all of the equipment in the room during the contract life. Because the five air conditioning units are near the end of their useful life, the Contractor must decommission them from service no later than December 1, 2001. If it chooses to use these units as part of his air conditioning plan prior to this termination date, the Contractor will be responsible for their operation from the start of HPCS installation until they are turned off and removed by the Contractor.” Page C-37 of the Solicitation should be removed and replaced with the enclosed Page C-37 and C-37a.

o Section C.4.10.5, Available Floor Space and Raised Floor Replacement, replace the second from the last paragraph of the section with the following:

“The raised floor shown in green in Figure 5 was installed in 1980. Prior to December 1, 2001, the Contractor must have completed the replacement of all sections of the raised floor installed in 1980. This replacement must include new tiles, supports, and stringers, with the raised floor system securely bolted to the surrounding, newer raised floor supports. The one possible exception to this requirement is that the raised floor beneath the room (Vendor Area) at the left rear of the Computer Room need not be replaced until that time when this area is to be used to support HPCS system. Even before December 2001, the Government recommends replacement of any sections of this old flooring prior to its being used to support new equipment. In fact, the Government recommends that, before installing new equipment, the Contractor test the integrity of all floor sections and supports and, if necessary, replace any floor sections, including stringers and supports, that are

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found to be inadequate.” Page C-41 of the Solicitation should be removed and replaced with the enclosed Page C-41.

o Section C.4.10.6, Facility Renovations to Provide Rooms for Operators and Printers, replace the last paragraph of the section with the following:

“This construction is likely to require modifications to mechanical and electrical systems in order to provide the additional capacity in these rooms for the equipment being relocated. Additional ventilation may also be needed. The Contractor has sole responsibility for obtaining any construction licenses, permits, and approval for this work from Plainsboro Township and Princeton University, as required.

Construction of these rooms must be completed and the rooms be ready for occupancy by October 1, 2001. Prior to this, the Contractor must create a temporary location for the Operations staff to manage the HPCS and the SGI/Cray systems within the Computer Room, subject to Government approval. The Operations Staff must have visual access to users in the Ready Room for day-to-day interaction, and the area must afford them a reasonable view of the major computer systems in the room. The decibel level in this area may not exceed 85 dba. This location must meet requirements for low noise level (<85dba), sight access to users in the Ready Room, and reasonable view of the major computer systems in the room. Subject to the approval by the Government, the Contractor may also relocate the printers to a temporary location within the Computer Room to make room for the new HPCS equipment.” Page C-42 of the Solicitation should be removed and replaced with the enclosed Page C-42.

3. This Amendment also responds to vendor’s Question 68 through Question 158 (except for questions in this sequence that were responded to in Amendment 0002 or Questions 147 and 157 which will be responded to in a subsequent Amendment). These responses are included as Attachment A to this Amendment. NOTE: The questions and answers are also posted to the GFDL web site at: <http://www.gfdl.gov/hpsc>

If there are any disparity between the questions and answers on the web site and this Amendment, this Amendment shall prevail. Any additional questions received will be responded to in a subsequent Amendment.

SECTION C

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- ! System software on the LSC, AC, HSMS, and HFS listed as required in C.4.8.1
- ! Resource management software on the LSC, AC, HSMS, and HFS listed as required in C.4.8.2
- ! Programming environment software on the LSC and AC listed as required in C.4.8.3
- ! X-windows applications software for the AC listed as required in C.4.8.4

C.4.2.7 Reliability, Availability, and Support

- ! A designated point of contact to request maintenance
- ! Escalation procedures that allow the Government round-the-clock telephone contact with knowledgeable Contractor staff should the designated point of contact be unavailable
- ! Preventive Maintenance that is completely performed outside the hours of GFDL primetime
- ! Uninterruptable power supplies (UPSs) for all components of the HPCS to provide sufficient power during environmental failure to gracefully shut down all components of the HPCS, **effective no later than 60 days after the shutdown of the T932 system.**
- ! At least two software engineers, at least one hardware engineer, and at least one applications analyst available on-site for at least eight hours within GFDL primetime, five days per week
- ! Additional on-call support 24 hours per day, 7 days per week, with a 2-hour response time
- ! An itemized list of all Contractor-supplied hardware and software items, and documentation of these items, in printable electronic form
- ! Training at GFDL for approximately 30 computer specialists and operators in the topics listed in C.4.9.3
- ! Training at GFDL for approximately 100 applications programmers in the topics listed in C.4.9.3
- ! A list of additional potential training topics
- ! Automated backup for the system disks on the LSC, AC, HSMS, and the entire /home filesystem on the HFS
- ! A combination of full and incremental backups of the /home filesystem to robotically mounted tapes, so that it is possible to restore files to their state on any day during the previous two calendar months
- ! A history of bimonthly full backups of the /home filesystem for shelf storage until the end of the HPCS system life, and restoration of files from these backups until the end of the HPCS system life

The testing and installation of Operating System upgrades will count as downtime. Preparation for post-upgrade LTDs, including any benchmark development by the Contractor, will count as downtime.

C.4.9.2 Availability

Proposed throughput benchmark performance levels will be combined with the proposed availability level to determine a measure of overall proposed system-life throughput for the LSC and for the AC. The actual throughput will be measured on a periodic basis, to be determined by the Government and Contractor, by combining the demonstrated benchmark performance with the operational use time on the LSC and on the AC. The proposed performance levels must be met for each measurement of actual throughput regardless of past delivery of suites.

Shortfalls in throughput on the LSC or on the AC shall be made up with new equipment brought in at no additional cost. Using the demonstrated benchmark performance on the upgraded LSC or AC, the Government will calculate how long the upgrade shall stay in place to compensate for the shortfall in throughput. This will be rounded up to a multiple of 6-month intervals to minimize disruption.

At the option of the Government, shortfalls in throughput on the LSC or on the AC due to downtime shall cause downtime credits to accrue, as cited in section F.3.3. These downtime credits shall be in lieu of bringing in new equipment. Downtime credits shall accrue on the HSMS or HFS as cited in section F.3.3.

To better reflect GFDL's computational needs over time, changes in the LSC and AC throughput benchmarks shall be made by mutual agreement between the Government and the Contractor throughout the life of the HPCS.

Accumulated computational cycles (in CPU-hours) that are lost when jobs are lost due to component failure or component reboot will not count toward the system-life throughput calculation. If the accounting software cannot report the accumulated computational cycles, it will be assumed that 4 CPU-hours were lost for each processor on which the job ran.

All performance levels proposed for hardware and software upgrades must be met regardless of past delivery of suites.

Uninterruptable power supplies (UPS) are required for all components of the HPCS, **effective no later than 60 days after the shutdown of the SGI/CRAY T932 System**. These shall provide sufficient power during environmental failure to gracefully shut down all components of the HPCS.

C.4.9.3 Support

The Government requires at least two software engineers (to provide a comprehensive system administration service), at least one hardware engineer, and at least one applications analyst available on site for at least eight hours within GFDL's primetime window, five days per week. Additional on-call support shall be provided 24 hours per day, 7 days per week, with a 2-hour response time. The Government reserves the right to substitute hardware engineers with software engineers or application analysts during the life of the contract on an as-needed basis. Problem escalation procedures will be evaluated.

C.4.10 Facilities Description and Requirement**C.4.10.1 Overview**

The HPCS will be installed in the Computer Room of the GFDL Computer Building, which is located behind the main GFDL building. These two buildings, together with ten acres of land, make up the GFDL Complex, which is located on the B Site of Princeton University's Forrestal Campus in Plainsboro Township, Middlesex County, New Jersey. The Complex is leased from Princeton University through a triple-net lease agreement under which the University owns the buildings and land, but the Government has primary responsibility to maintain the buildings and the equipment therein. Princeton University provides water and sewage utilities and maintains campus roads and grounds; however, GFDL purchases electricity and natural gas directly from the local utility, Public Service Gas and Electric (PSE&G). The Government obtains day-to-day facility support from the University on an ongoing basis.

The GFDL Computer Building was constructed in 1980 in order to provide a dedicated facility to house the Laboratory's central computer system and associated equipment and to provide office space for the GFDL Computer Systems and Operations staff and Contractor support personnel. The new building was designed to provide sufficient raised floor space in the computer room to allow GFDL to operate two generations of systems concurrently, together with associated data archival storage, during transitions from one generation system to the next. When the Laboratory's UNIX workstation network was installed throughout the Laboratory buildings in the late 1980's, GFDL installed network servers and routers in the Computer Building as well.

C.4.10.2 Available Power

The existing electrical service to the GFDL Complex and the rest of Princeton University's B-Site of Forrestal Campus is served from a PSE&G utility substation, a 2000 kVA 13200 to 4160 volt oil filled transformer and 4160 volt switchgear. This substation is located outside of the southwest corner of the Computer Building directly adjacent to the parking lot. This substation has been sized based on the power requirements of both the GFDL Complex and the rest of the B-Site of Forrestal Campus; the great majority of the power demand on the substation is used by GFDL, and there are recent university plans to dedicate the substation for GFDL's sole use. PSE&G will also be evaluating an option to upgrade the substation transformer during the next six months. **Current plans are to upgrade the substation transformer to 2500 kVA during the summer of 2000.**

If the power available to the Computer Building becomes inadequate for the new equipment to be installed in the Computer Room at any time during the contract life, the Contractor will have the responsibility to assure that adequate power service is provided to the building. In this case, the Contractor shall ask the owner, Princeton University, to request that PSE&G upgrade the electrical service as required.

An underground 4160-volt feeder, dedicated to the GFDL Complex, is routed from the utility substation to separate building substations located within the GFDL Main Building and Computer Building. GFDL will work with Princeton University to upgrade this underground feeder line during the summer of 2000.

Table 4a. GFDL Power Usage and Expenditures by Fiscal Year for FY 1994 - FY 2000

	Annual Use (KwH)	Expenditure	Avg. Cost/KwH
FY 1994	6,652,160	\$420,812	\$0.0633
FY 1995	6,286,400	\$430,826	\$0.0633
FY 1996	9,095,360	\$631,267	\$0.0685
FY 1997	7,700,800	\$511,684	\$0.0694
FY 1998	8,085,760	\$554,758	\$0.0664
FY 1999	8,826,400	\$713,948	\$0.0686
FY 2000 (thru Jan.)	3,025,600	\$212,176	\$0.0809

C.4.10.3 Available Cooling

Two centrifugal chillers and cooling towers make up the primary Chilled Water Plant, which is located in the mechanical room and tower bay southeast of the Transformer Room (see Figure 2). These chillers will be rated at 400 and 380 tons and are referred to as Chiller #2 and #3 respectively. Chiller #2, the new 400-ton chiller, is being installed in the spring of 2000 along with new cooling towers and pumps. Chiller #3, installed in 1996, will be upgraded from 350 tons to 380 tons capacity as part of this renovation. The Government desires that these systems be operated in such a way that only one chiller is required on most days. The two chillers are intended to provide redundancy and to only be required on days in which cooling demands are high. However, during initial installation of the HPCS, both chillers may be needed on warm days in order to support both the new system and the SG I/Cray systems, running in parallel. Chiller #4, located in the Transformer Room, is approximately 21 years old and will not be considered as a part of the normally operating Chilled Water Plant after the spring 2000 renovation. This chiller, which has been derated from 225 to 205 tons, will only be used for emergencies or as backup to partially support the cooling load during short periods of time when one of the primary chillers is taken offline for servicing or repair.

Cooling is delivered to the Computer Room through a six-inch piping system from the mechanical room at a temperature of 45 degrees Fahrenheit, plus or minus 2 degrees. The pipe enters the Computer Room in a trench that is 3-4 feet deep under the raised floor in the center of the Computer Room, as indicated in Figure 2. It is currently connected to five (5) air conditioning (blazer) units located on the raised floor, as well as to the refrigeration units of the existing SGI/Cray systems. Four (4) air conditioning units, each rated at 20 tons, are distributed in the center of the Computer Room, while one 40-ton unit is located near the doorway to the loading dock. The locations of these five units are indicated by blue rectangles in Figure 3, which shows details of the room layout as of the summer of 2000. These existing air conditioning units, with compressors, refrigeration circuits, etc., are estimated to be 21 years old.

The Contractor has the responsibility to develop and implement an air conditioning plan for the

Computer Room that provides adequate cooling, humidification and dehumidification to maintain the environment of the room at the operating specifications needed for all of the equipment in the room during the contract life. Because the five air conditioning units are near the end of their useful life, the Contractor must decommission them from service no later than December 1, 2001. If it chooses to use these units as part of his air conditioning plan prior to this termination date, the Contractor will be responsible for their operation from the start of HPCS installation until they are turned off and removed by the Contractor.

raised floor is designed to support a uniform live load of 250 pounds per square foot, with a deflection of not more than 0.040 inch. Great care must obviously be taken in moving heavy equipment across any raised floor so as to distribute equipment loads evenly.

The raised floor shown in green in Figure 5 was installed in 1980. Prior to December 1, 2001, the Contractor must have completed the replacement of all sections of the raised floor installed in 1980. This replacement must include new tiles, supports, and stringers, with the raised floor system securely bolted to the surrounding, newer raised floor supports. The one possible exception to this requirement is that the raised floor beneath the room (Vendor Area) at the left rear of the Computer Room need not be replaced until that time when this area is to be used to support HPCS system. Even before December 2001, the Government recommends replacement of any sections of this old flooring prior to its being used to support new equipment. In fact, the Government recommends that, before installing new equipment, the Contractor test the integrity of all floor sections and supports and, if necessary, replace any floor sections, including stringers and supports, that are found to be inadequate.

The Government's past strategy for floor space usage in the GFDL Computer Room has been to limit the amount of space available to the new Contractor to no more than half of the total raised floor space within the room. The purpose of this was to leave sufficient space unoccupied so that the follow-on contractor would be able to install and operate the next system in parallel with the current system. With this objective in mind, the Government desires that the Contractor restrict his use of floor space, both raised and solid, to no more than half of the total space within the Computer Room. If the new equipment uses more than half of the available floor space, the proposal must provide recommendations on how the Government can design the follow-on procurement and installation in order to provide for overlap of systems.

C.4.10.6 Facility Renovations to Provide Rooms for Operators and Printers

Under the current arrangements, the GFDL Operations staff operates the SGI/Cray systems from workstations located in the Computer Room itself. In addition, the operations staff is responsible for managing printers located in the Computer Room. These printers are currently the primary means by which GFDL users produce printed output. The Government has concluded that the operations control area should be moved out of the main computer room for two reasons: to provide the Operations staff with a quiet work environment, and to increase the raised floor space available for equipment. Users will need to have reasonable access to the Operations staff, in a manner that maintains acceptable physical security and restricted access to the Computer Room. In addition, user bins should be accessible by users while being located close to the printers, which should also be moved out of the main computer room.

With these objectives in mind, the Government requires that the current Ready Room and PC Storage Room (Figure 3) be renovated to provide an Operations Room and a User Support Room. The Operations staff will oversee and manage the systems and networks from the new Operations Room. The User Support Room will be divided into a Printer Area and a User Area, separated by a wall containing user bins and an input counter. The user bins are cubicles reserved for individual users' printed output. The input counter is an open counter area where users can communicate directly with the operations staff and packages (FedEx, UPS, etc.) can be received by Operations.

The upper frame of Figure 6 is an enlargement of the current layout of the Ready Room, PC Storage Room, and Operator's Lounge as taken from Figure 3. The lower frame of this figure shows a schematic of a proposed layout for the Operations Room and User Support Room and their position relative to the Operators' Lounge.

Both the Operations Room and the Printer Area must have at least a 6-inch raised floor to accommodate wiring for the various consoles and printers. The back walls of the Operations Room and Printer Area (adjacent to the Computer Room) will have large glass windows to provide a view of the Computer Room. All doors leading to the Computer Room must be equipped with DOC-approved security devices. Presently, the Laboratory has card readers and cipher locks installed on doors accessing the Computer Room.

The design should provide for quick access to the fire alarm panel and environmental monitoring system. All necessary operating consoles, including consoles for network servers, shall be relocated to the Operations Room and shall be designed to provide convenient access. Cameras shall be placed in strategic locations within the Computer Room with associated monitors installed in the Operations Room. This will enable the Operations staff to observe the Computer Room in areas that are not visible through the glass windows.

This construction is likely to require modifications to mechanical and electrical systems in order to provide the additional capacity in these rooms for the equipment being relocated. Additional ventilation may also be needed. The Contractor has sole responsibility for obtaining any construction licenses, permits, and approval for this work from Plainsboro Township and Princeton University, as required.

Construction of these rooms must be completed and the rooms be ready for occupancy by October 1, 2001. Prior to this, the Contractor must create a temporary location for the Operations staff to manage the HPCS and the SGI/Cray systems within the Computer Room, subject to Government approval. The Operations Staff must have visual access to users in the Ready Room for day-to-day interaction, and the area must afford them a reasonable view of the major computer systems in the room. The decibel level in this area may not exceed 85 dba. This location must meet requirements for low noise level (<85dba), sight access to users in the Ready Room, and reasonable view of the major computer systems in the room. Subject to the approval by the Government, the Contractor may also relocate the printers to a temporary location within the Computer Room to make room for the new HPCS equipment.

Q68 For the Live Test Demonstrations (LTDs), the Government requires each vendor to complete the execution of all LTDs over a two day period - from 9AM to 5PM (local time) on day 1 and from 9AM to 3PM (local time) on day 2.

The total amount of time allotted is 14 hours. Given the number of LTDs to be executed and the allowance for vendors to utilize only 25% of the proposed configuration, it is unlikely that a vendor that chooses to run the LTDs with only a 25% configuration will be able to complete all of the LTDs in the allotted two day period. For example, if a vendor proposes to run the LSC Throughput Benchmark on the proposed initial system in 3 hours, but uses only a 25% configuration for the LTD, that LTD will consume on the order of 12 hours to complete, just by itself. That leaves precious little time for the remaining LTDs, not to mention the pre- and post-LTD setup time required between LTDs.

Are Government personnel willing to work longer hours per day for the two day period or will the Government agree to additional days for observance of the LTDs?

A68 Government personnel will be at the vendor site for the pre-award LTD during the hours cited in the solicitation. Offerors will not be required to run the entire LSC and AC throughput benchmarks to completion during the pre-award LTD. However, the Contractor will be required to run the installation LTD according to the Acceptance Test Plan cited in a forthcoming amendment to the RFP.

Q69 Are the figures in Section C.4.10, Facilities Description and Requirement, available in electronic CAD format?

A69 Only Figure 4 of RFP Section C is available in CAD form and it is provided at <ftp.gfdl.gov> in the directory `pub/HPCS/Facilities`. A postscript version of Figure 3 is provided at <ftp.gfdl.gov> in the directory `pub/HPCS/Facilities`.

Q70 Will specifications be provided for the five air conditioning (blazer) units that need to be replaced by the Contractor? What functionality is required?

A70: The Contractor has the responsibility to develop and implement an air conditioning plan for the Computer Room that provides adequate cooling, humidification and dehumidification to maintain the environment of the room at the operating specifications needed for the HPCS equipment and, during the overlapped operation period, for the SGI/Cray systems as well. While the Government does not require the decommissioning of the current air conditioning units until December 2001, the Contractor will be responsible

for their continued operation until they are decommissioned if he does not choose to replace these units at the initial installation.

If the Contractor determines that the current air conditioning units are not sufficient to maintain the room environment to support the operation of these systems, then he will need to install additional units and/or to replace the current units. The functionality of the units is whatever the Contractor determines to be needed to maintain the required room environment. At a minimum, the Government expects any new cooling units to be provided with chilled water cooling, heating, humidifiers, dehumidification capabilities, built-in controls and sensors, and EMCS tie-in capabilities for remote observation and control through a DDC system.

Q71 Responded to in Amendment 0002

Q72 Can you describe the sprinkler system in the Computer Room to be used with the HPCS, including specifications for clearance?

A72: The sprinkler system in the Computer Room is a wet system with the sprinkler heads recessed into the hung ceiling. The hung ceiling is approximately three (3) feet below the roof and is ten (10) feet above the surface of the raised floor. Township fire codes require at least 18 inches between the ceiling containing the sprinkler heads and the top of any equipment in the room.

Q73 How do you provide chilled water to the computer room when the power fails?

A73: In 1999, the Government installed a natural-gas-fired generator in the cooling tower bay. This generator, which has a capacity of 80 KW (480v. - 3 phase), automatically starts when the facility loses power. The generator was sized to provide power to one chilled water pump so it can continue to supply chilled water to the Computer Room and allow an orderly shut-down of the equipment, even though the chillers themselves shut down during a power outage. This utilizes the remaining residual chilled water in the piping during the shut-down cycle. The residual chilled water is estimated to be able to continue to cool GFDL's current systems for at least five minutes during the shutdown period.

Q74 Will a connection point to the 8" chilled-water pipes be provided?

A74: There are presently no plans to provide a connection point for the 8" lines to the existing chilled water system as part of the current chilled water plant construction project. The proper method for doing this should be to include such a connection as part of the Contractor's site preparations, as he will also have piping work to perform in the main computer room.

Q75 Responded to in Amendment 0002.

Q76 How often does the facility lose power?

A76: Since 1996, the facility has averaged around two power outages per month during summer months and one power outage every few month during winter months. Since changing over to the new PSE&G substation configuration in October 1998, we have experienced a total of 10 unscheduled power outage events. Five outages occurred during summer months (April - September) and five occurred during winter months (October - March) for this nineteen month period.

Q77 Can you provide specifications for the number and size of the user bins? What are the buttons beside the user bins used for?

A77: There should be at least 160 bins. In order to allow easy access by users, the bottom of the lowest bin should be at least 12" above the floor, and the bottom of the highest bin should be no more than 72" above the floor. The inside of each bin will be at least 14" deep and at least 10" wide in order to accommodate 8.5" by 11" paper output. The inside height of each bin should be at least 7 inches. The design should include an opening between the bin shelves that includes a counter to allow users to communicate face-to-face with the operations staff.

The two buttons next to each bin in the current bin configuration are part of a communications system that has been used to notify users in their offices that printer output is available in their bins. This system will not be reinstalled in the new bin design.

Q78 How many printers need to be relocated and how are they to be reconnected?

A78: The nine (9) printers listed in Section C.4.10.4 will need to be relocated. This will require longer CAT-5 cables in order to connect the relocated printers to the GFDL HUB. Members of the GFDL Technical Support Group will work with the vendor to reconnect these printers.

Q79 Can you describe the room containing the Computer Building substation for the computer building? In particular, are the walls and ceiling poured concrete?

A79: The room containing the Computer Building substation and Chiller #4 is constructed with poured concrete walls and ceilings.

Q80 What video coverage do you need for the Computer Room? Do you require video recording? How many cameras and how many monitors are required?

A80: The operators sitting in the Operations Room should be able to visually monitor all important systems in the Computer Room. Cameras shall be located in the Computer Room so as to provide the operations staff with the ability to view sections of the room that are not easily visible through the viewing window. These cameras will enable the operators to identify problems within the room, such as smoke, open cabinet doors, and potential security problems. The number of cameras in the room depends on the type of equipment in the room and the sight lines the equipment provides. There is no need for video recording. It is desirable that there be at least two monitors in the Operations Room that can view each camera mounted in the Computer Room, possibly cycling the views provided by the different cameras on a regular basis.

Q81 Responded to in Amendment 0002.

Q82 Please discuss the Government's concerns regarding the raised floor evaluation. What does the Government expect the Contractor to do and when?

A82: Because of the age of some of the floor sections and the differing raised floor systems involved, the Government recommends that, prior to any equipment installation, the Contractor test the integrity of the entire raised floor area, including supports, to assure that the floor meets its design specifications. Any section that fails to pass this test should be replaced. This should include stringers and supports that are found to be lacking.

The raised floor installed in 1980, as indicated in Figure 5, must be replaced prior to December 1, 2001. Replacement should be sooner if this floor fails to meet the Contractor's tests and is to be used to support new equipment. The replacement must include new tiles, supports, and stringers. The new raised floor system must be bolted securely to any old raised flooring left in place in the room.

Q83 There is no 480-volt breaker at the present time for a new feeder for the new HPCS equipment within the Computer Building substation. Will the Government provide one?

A83: The Government will discontinue its use of one of the 480-volt breakers in order to provide the Contractor with a breaker to use for the new HPCS equipment.

Q84 How long must the UPS last for system shutdown, as discussed in Section C.4.9.2, entitled "Availability"?

A84: The period of time required for the UPS to provide power to the system for shutdown will depend on system characteristics and is the responsibility of the Offeror to specify. As part of these specifications, the Offeror should assume that the GFDL operations staff will require an additional period of one (1) minute to initiate shutdown after a failure event first occurs.

Q85 Where does the Government anticipate the location of the UPS to be?

A85: Because the Government will not require UPS coverage of the new HPCS until after the T932 system is shutdown and the associated SGI/Cray equipment is removed, the UPS room will be available for the Contractor to use as a site for its UPS.

Q86 Does Princeton University have a standard set of facilities specifications that must be adhered to?

A86: Princeton University has developed specifications and guidelines for electrical work. These documents, which are in electronic form, will be made available to Offerors once Princeton gives the Government permission to put them on the public vendor website.

Q87 - Q120 Responded to in Amendment 0002.

Q121 Reference C.4.10.6 Facility Renovations: There is a requirement to relocate nine (9) existing printers. For planning purposes of placing new equipment in the computer room, please advise when construction of the printer room can start and when the printers can be relocated. This contractor would like to have the option of relocating the printers prior to equipment arrival on December 1, 2000.

A121: The Government recognizes that the Contractor may need to relocate Government-owned equipment, such as printers and servers, prior to the arrival of its equipment on December 1, 2000, in order to make room for the new HPCS. The Contractor will be responsible for the moving of this equipment, once the Government has approved the planned relocation. The Contractor must assure that the relocated equipment will operate in an identical manner in its new location. Construction of the printer room can begin once they have obtained township building permits. As indicated by revisions to Section C, the construction must be completed and occupancy permits obtained by October 1, 2001.

Q122 Reference C.4.10.6 Facility Renovations: There is a requirement to relocate existing workstations to the proposed new Operations Room. Please advise how many, how are they to be reconnected, and what furniture (if any) is required.

A122: The Government will supply any Operations Room furniture such as chairs that are not supporting monitors, keyboards, workstations, etc.

The operators' area within the current configuration consists of one operator workstation for each of the three SGI/Cray systems, i.e., T932, T3E, and T94. Depending on the timing of the construction of the Operations Room, the Contractor will need to relocate the workstation of each of the SGI/Cray systems that are still operating. Besides the monitors that he will provide for the new HPCS systems, the Contractor should also allow space for at least two additional workstations with monitors to be used to monitor the Laboratory's networks.

Q123 Reference C.4.10.6 Facility Renovations: During the Site visit, we were informed verbally that power poles in the new printer room and operations room, a path for power and signal cables from the ceiling to the equipment, are an acceptable alternative to a raised floor. Please confirm this.

A123: After further discussion, the Government has determined that power poles are not acceptable, primarily because power poles would restrict flexibility for relocating or adding printers to the printer room. The Operations Room and Printer Room must use a raised floor with sufficient space to permit power access to the printers from below.

Q124 Reference C.4.10.6 Facility Renovations: The assumption is made that the new Operations Room will be staffed by Government employees. Will the government provide offices for the Contractor staff.

A124: Areas in the Computer Facility will be set aside for the staff of the new Contractor during the transition period. The new vendor will be moved into the areas occupied by the current vendor within thirty days after the shutdown of the T932 and T3E systems.

Q125 Reference C.4.2.8 Facilities: Amendment 1 expanded the power analysis and requirements in this section. The first bullet implies that the existing power system, 2000 KVA transformer and 1500 KVA transformer will be adequate to handle a new load of HPCS equipment which does not exceed 675 KVA. We believe that this should be the limiting factor for the new load.

In a power analysis, there are two ways of looking at the system. One is to look at the load and the other is to look at the source. This contractor looks at the load and cannot address the issue of the source. The source is provided through a complex algorithm based on all loads and the final result is determined by the utility company. During the site visit, a statement was made that the intent is to have the utility company replace the 2000 KVA transformer if there is a justifiable need which can be demonstrated through a connected load analysis.

The second paragraph of paragraph C.4.10.2 puts the responsibility of the 2000 KVA transformer on the contractor. The load on this transformer keeps changing with addition of chillers 2 and 3 for which no KVA data is available. We request that all statements concerning the responsibility of replacing the 2000 KVA transformer be deleted.

A125: The utility company, PSE&G, is already planning to upgrade the substation transformer to 2500 KVA at Princeton's request. This upgrade should be accomplished this summer. Any further upgrade(s) will be the responsibility of the Contractor.

Q126 - Q129 Responded to in Amendment 0002.

Q130 Can you provide drawings detailing the renovations being made to the chilled water plant?

A130: The Government does not consider most of the drawings associated with the chilled water plant upgrade to be relevant to this procurement. However, one drawing, showing the chilled water schematic for the upgrade, may be of use. Therefore, we are including a copy of this in the set of drawings that are available as described in the answer to Question Q156.

QUESTIONS & ANSWERS

AMENDMENT 0003

Q131 Will the UPS systems serving the Cray Computer equipment be removed with the Cray Computers?

A131: The two UPS systems are part of the SGI/Cray lease and are expected to be removed when the computers that they service are shutdown and removed from the site.

Q132 If existing carpeted tiles are replaced, what color of carpet needs to be on the new computer floor?

A132: The carpeted tiles must match as closely as possible the carpeted tiles that were installed in 1995. The drawings from the 1995 Cray installation provide specifications for the carpeted tiles that were installed at that time.

Q133 What are the individual ratings of each UPS serving the computer floor, and what, if any, is the spare capacity in the units?

A133: There are two UPS systems in place to cover the three SGI/Cray systems. Each has a capacity of 225 KVA, with 480-volt input and 480-volt output. The manufacturer of these UPS systems is MGE UPS Systems, formerly known as EPE Technologies, Inc. The UPS for the T932, which is located in the UPS room on the rear right side of the Computer Room, is estimated to have 88% utilization with a ten (10) minute ride-through capability. The UPS for the T3E and T94 systems, located on the rear wall of the Computer Room, is estimated to have 80% utilization. The ride-through capability is not known.

Q134 Can you provide an electrical one line diagram or an electrical riser diagram for the computer facility?

A134: The most recent electrical diagrams for the facility are contained in the drawings from the 1995 installation of the SGI/Cray systems. Offerors are directed to the answer to Question Q156 for instructions on how to obtain these drawings.

Q135 Can you provide electrical power panel load schedules?

A135: The Government does not have this information available.

Q136 Can you provide the name of the manufacturer and the catalog number for the raised floor panels/ tiles currently in use?

A136: The drawings from the 1995 installation provide this information. Offerors are directed to the answer to Question Q156 for instructions on how to obtain these drawings.

Q137 Upon award of the contract will there be a point of contact with the facilities department of Princeton University to provide additional information on the facility?

A137: Yes.

Q138 If the Contract is awarded in September of 2000, there is not sufficient time in the schedule to order long lead items such as Air Conditioners and UPS (12 to 14 week lead time). Will additional time be allowed for these items?

A138: Amendment 0003 changes the requirements in Section C regarding the timing of the decommissioning of the air conditioning units and the timing of UPS coverage for the HPCS will provide Offerors with sufficient lead time for the acquisition of this equipment.

Q139 In the SEASONAL benchmark, we need to include netcdf and udunits libraries. The netcdf.inc supplied with SEASONAL is different from netcdf.inc provided with netcdf libraries. The seasonal program fails with a message asking did you forget to include netcdf.inc. Are these two netcdf.inc files (from netcdf and SEASONAL) supposed to be identical? Please advise.

A139 The netcdf.inc included within the SEASONAL source tree should not be used in the SEASONAL benchmark. The script execute/create_execute copies the appropriate default netcdf.inc file from the distribution. The path to this file may need to be changed to wherever the netcdf distribution was installed.

Q140 Is the pricing for the application software to be included in the proposal? If so, what are the number of concurrent users for each software package and what level of support is required to maintain these packages?

A140 The pricing for the application software is to be included in the proposal. Technical support by telephone, email, and the Internet and software upgrades shall be included in the price listed in the proposal.

The following shows the present number of concurrent users that can use each of the corresponding X- windows applications software packages:

MATLAB	8
Mathematica	2 (node-locked)
IDL	2
S-Plus	3
NCAR graphics	unlimited
NAG Iris Explorer	12

Also, an unlimited number of concurrent users can use the NAG Fortran Library. All of these licenses are for SGI platforms.

The following shows the number of concurrent users that must be able to use each of the corresponding X-windows applications software packages on the AC (recall that NAG Iris Explorer is desired software):

MATLAB	9
Mathematica	2 (floating)
IDL	3
S-Plus	3
NCAR graphics	unlimited
NAG Iris Explorer	12

and an unlimited number of concurrent users must be able to use the NAG Fortran Library on the LSC and AC. Offerors are encouraged to discuss with NAG the transfer of the NAG license on GFDL's T932 to the LSC.

GFDL would like to have its current complement of X-application software licenses usable on both its desktop workstations and the AC. To this end, offerors should explore the purchase of a licensing arrangement that satisfies this need. The additional licences (1 for MATLAB and 1 for IDL) must be purchased and licensed to run on both desktop workstations and the AC. Note that the current node- locked license for Mathematica must be converted to a floating license.

Q141 Please identify which of these applications software packages will execute on the AC or on the users desktop.

A141 All of the listed applications software packages (including NAG Iris Explorer if provided) shall execute on both desktop workstations and the AC, according to the discussion of the licensing arrangements in A140.

Q142 Are these application software packages to be served from the AC computer itself or will there be GFE equipment to provide application and license serving?

A142 Executables for the AC shall be served from the AC. However, license serving shall be done from GFDL's current UNIX license server (an SGI workstation).

Q143 Please clarify the requirement in section 4.2.3 that specifies the legacy archive to remain writable until the T94, T932, and T3E are de-installed. If a new archive is provided with immediate write capability, then why does this requirement exist?

A143 Please see the answer to Q111.

Q144 Does the RFP require the ability to read 3490E tapes, aside from the requirement to read the legacy archive data?

A144 No.

Q145 With respect to each of the current Timberline, 10 GB Redwood, and 50 GB Redwood tapes, what kind of compression is presently being achieved when archiving user data?

A145 The compression factor of 1.3 cited in RFP Section C.3.4 is typical for each of the listed tapes.

Q146 Is the T3 phone line a point to point or a point to long distance provider. If it is a point-to-point, we need to know from what area code and exchange the T1 starts and what area code and exchange it ends. If it is to a long distance carrier, we need the area code and exchange the computer room is in and who the long distance carrier is? Is the T3 link commercial or Government?

A146 GFDL's current T1 connection is a commercial Point-to-Point link to a POP server in Trenton, NJ. There is no telephone information for this connection, but the circuit number is HCGA 092487.

Q147 In Section J the instructions for tables A-3.2, A-3.3, and A-3.4 refer to evaluated residual value. Are bidders to determine this value? What is the effect of this factor in the price evaluation to be conducted by the Government?

A147 Response to be provided in a subsequent Amendment.

Q148 In Section L, Tab 6. Large Scale Cluster (LCS) numbers 6 and 7, are you asking for actual measured bandwidths on the machine or are you asking for an effective bandwidth computed only from the supplied formula using the latency and nominal bandwidth of the machine?

A148 It is sufficient to report, for the requested message sizes, the effective bandwidth based on the formula using the latency and nominal bandwidth of the machine. Offerors in the competitive range may be asked to verify these numbers at the LTD.

Q149 You have indicated that the 100 TB of archived data includes some multiple copies of user data. Could you estimate how much of this data is "duplicated" data.

A149 The amount of data that is duplicated in the current data archive is unknown. Duplicating files is solely at the discretion of the individual user.

Q150 Does the 100 TB of archived data include all of the COS-Blocked and cpio files with cray binary headers?

A150 The 100 TB of archived data includes all of the COS-Blocked and cpio files with cray binary headers.

Q151 What percentage of the total CPU utilization on each of the current home file servers is attributed to the act of "home" file serving?

A151 The T94 serves the T90 home directories, /t90, to the T932 and itself. The T94 runs with high system time, about 25% on average, fluctuating between 10% and 40%.

T94 performance has not been analyzed in detail. GFDL's thinking is that about half of system time results from its role as an NFS v.2 server to the T932, and half results from I/O performed locally. (Most of GFDL's I/O intensive work is run on the T94). Both of these loads include a lot of small I/Os that are poorly matched to the T94's RAID-3 disk subsystems.

The T3E serves its local home directories, /t3e, only to workstations. The load is light, and system time is low.

The workstation home directories, /home, are served by a SGI Indigo2 workstation dedicated to this function.

Q152 Will the Government extend the proposal due date to June 26, 2000?

A152 Amendment 0003 extends the deadline for the receipt of proposals to 3pm EDT, June 9, 2000. A revised schedule for the remainder of the acquisition up to point of contract award has been posted at http://www.gfdl.gov/hpcs/HPCS_Vendor_Timeline.html. It is important to note that there is virtually no room for additional extensions if the Government is to award in FY2000. If the Government awards after 9/30/00, there could be exceedingly adverse financial implications, including the possible loss of all FY2000 HPCS funds and a comparable reduction of funds in following years.

Q153 When the AC benchmark FMS development N30L40 code is run using the Scaling Study data and script, it runs correctly. However, when the AC benchmark is run the following error message is generated: write_field_averages in diag_integral_mod, field_count equals zero for field_name olr and the code aborts. Please verify that the AC

benchmark will run with the files provided and reproduce the answers provided in the scaling study output.

A153 A new version of the file `diag_table_mgroup` is required and is available at <ftp.gfdl.gov> in the directory `/pub/ben/update_050100`. Additionally, the namelist parameter `"output_interval"` in the namelist `"diag_integral_nml"` in the run script for the FMS N30L40 AC benchmark should be set to a value of 70.0.

Q154 Section J of the RFP defines the data that is to be recorded in the supplied spreadsheets for the LSC Throughput Benchmark. This data includes "Run WCT" and "Seg WCT". In particular, "Seg WCT" is defined to be the time required from program invocation to program end for a segment. Since there is only one "mprun" command in a segment's script, the definition of "Seg WCT" is understood. However, for the AC Throughput Benchmark, where the same set of data is to be recorded, there are two jobs (SEASONAL and NC_COMBINE) which execute multiple "mprun" commands within the script. Should the "Seg WCT" reflect the sum of all of the WCT from each of the "mprun" commands or should each "mprun" command be timed (and reported) separately? If the latter, the spreadsheet for the AC Throughput Benchmark will have to be amended to reflect multiple "Seg WCT" entries for these two jobs.

A154 The "Seg WCT" should reflect the total of all of the WCT from all of the "mprun" commands in the AC benchmarks. "Seg WCT" for each individual mprun command within the job is not required.

Q155 Can the RFP document be provided in WordPerfect format instead of just PDF?

A155 RFP Sections C, J, L, and M will be posted soon at <http://www.rdc.noaa.gov/~amd/90030.html>

Q156 Are there any additional drawings or more recent drawings of GFDL's Computing Facility available other than the ones handed out at the site visit?

A156 Copies of drawings from the 1995 Cray installation are available. A copy of the drawings together with a chilled-water schematic from the current chilled-water plant upgrade will be Fedex-ed upon the receipt of an appropriate FedEx address and a FedEx account number. Please email this information to bdg@gfdl.gov, and Cc: William.Voitk@agf.noaa.gov.

Q157 Section B.2, Note A of the RFP, provides a Base Contract Period funding profile of 4 periods, FY2000 through FY2003, and an Option Contract Period of FY2004 through FY2006. This is a total of seven (7) periods. However, Section B.2 Contract Line Item Description List, provides for Clin 0001 through Clin 0006, for a total of six (6) periods. Clins 0001 through 0003 are identified as the Base period and Clins 0004 through 0006 are identified as the Option Period. Section B.2, Note F, Amendment 1, of the RFP, indicates that that proposals will be evaluated based upon October 1, 2000, as the first invoice payment. Section F.2, of the RFP, states..."the period of the contract will encompass seven years (FY2000-FY2006).

Please clarify the following:

1. How should the prospective contractor view the funds and their availability that have been identified for FY2000? Please clarify the apparent difference between seven (7) periods and six (6) periods as noted above.
2. For the schedules in Section J.4, Pricing Tables, what should be considered as Month 1? Should the contractor assume month 1 to be October, 2000? If so, should the tables be constructed to a total of 60 months?

A157 To be responded to in a subsequent Amendment.

Q158 For the AC benchmark code FMS, the namelist parameter "output_interval" in the namelist "diag_integral_nml" is supposed to be set a value of 70.0. The run length of the job is only 68 hours. Is this value correct?

A158 This value is correct. Setting this value greater than the run length effectively prevents writing radiation data out to the file 1980jan03h20.diag_integral.out, a necessary constraint in this particular benchmark code. Values in the file 1980jan03h20.dynam_integral.out may still be used for comparing the AC benchmark run with the LSC Scaling Study run (except the data is written every half-hour in the FMS AC benchmark and every quarter-day in the N30L40 LSC Scaling Study benchmark).